SECTION 3: CLASSIFICATION OF AMOC ISSUES

Discussion:

The results of customer survey, data gathering and analysis, as described in the previous section, highlighted that the customers are generally satisfied with the response time for approval of AMOC requests. However, the current increasing trend in the number of AMOC requests necessitates development of new approaches of handling the AMOC requests. In accordance with the team approach, the team sought to identify the sources of delays, problem areas and legal barriers in delegation of AMOC approvals.

The team was able to identify a comprehensive list of issues whose resolutions were significant to fulfill its charter successfully. The list was reviewed to reach consensus on a final list of issues. This second process led to consolidation of some of the items on the original list.

In the next step, the AMOC team reviewed the final list of issues and classified them into four different categories. The four categories and the issues in each are outlined below.

Category 1 - AMOC PROCESS

1-1 Coordination with the PMI's.
1-2 Signature delegation at the ACO including off-duty hours approval.
1-3 Lack of standard process of handling AMOC approvals within the FAA.
1-4 Lack of standardization of data required for an AMOC.
- need date
- data required
- lead time required

1-5 Communication of general AMOC approvals to users (OEMs and operators).
1-6 Approval time required for NDI technique.

Category 2 - DELEGATION

2-1. Define substantive parameters of delegation.
- Value added by ACOs review of AMOCs
- Lack of delegation external to ACO
- Definition of "acceptable level of safety"
    - Need Guidelines to allow delegation for approvals of some AMOCs by DERs
    - Lack of a system to define clear standards for DERs to find compliance in AMOCs
- Delegated system accountability and auditability to provide necessary enforceability of the AMOC.

2-2 Define process for delegation.

Category 3 - SB/AD PROCESS

3-1 Coordination between the TCH and FAA must ensure that S/B revisions are approved as AMOCs when applicable (statement needs to be more specific).

3-2 Authorization for an aircraft to return to service based on FAA approved data for a limited period with formal AMOC approval within a specified time interval.

3-3 Utilize the lead airline concept more completely to work out S/B problems before the A/D is published.

3-4 Revise an A/D more often when errors in the content are discovered to eliminate the need for an AMOC request.

Category 4 - Supplemental Structural Inspection Program (SSIP).

4-1 Investigate delegation of approval of SSIP repairs to the TCH.

The remainder of this section describes various issues highlighted above. The recommendations in each category are developed with an understanding of the issues listed above. In other words, the understanding of the above issues was necessary in order to develop recommendations for process improvement, expansion of delegation of AMOC approvals, improved coordination in SB/AD process and potential increased delegation of SSIP related repair approvals.

Category 1 - AMOC Process:

A review of the entire AMOC request and approval process, starting at the customers' facilities and ending with the issuance of the approval letter by ACOs was conducted, with the intent to identify the sources of delays. The AMOC team was then able to identify improved processes and define recommendations which will result in overall reduction of the time span associated with the handling of AMOC requests.

The following aspects of AMOC approval processes have been reviewed by the team;

1) Timing of the initiation of AMOC requests by the applicants airlines.
2) Information contained in a request.
3) Coordination with the Type Certificate Holders (TCHs).
4) Coordination with the PMI's.
5) Coordination of AMOC response within the ACOs.
6) Transferability of AMOC approvals.

The results of these reviews are summarized below;

1) Timing of the initiation of AMOC requests by applicants

The intent of this review was to learn what processes are in place at the applicants' facilities to ensure that timely requests are initiated and forwarded to the ACO. The AMOC team recognizes the need for timely approval of AMOCs, but believes that when dealing with an AD related deviation, proper planning is necessary to allow sufficient time for the appropriate coordination with the manufacturer and issuance of the approval letter.

Operators would prefer to conduct AD related inspections and modifications during an aircraft scheduled heavy maintenance. First , inspection teams conduct all AD related inspections, so that the need for deviating from the AD requirements are identified, repairs are developed and the process of initiating a request for AMOC can begin. Normally, a heavy maintenance visit could last from one to four weeks. This time is adequate for obtaining approval of the deviations.

Most AD inspections are accomplished during "C" checks, "B" checks or segmented "C" check holds, where an aircraft is in a scheduled maintenance hold for a period that may vary from a week to an overnight hold. Obviously it becomes more difficult to obtain AMOC approvals when inspections are accomplished on overnight holds than when an aircraft is scheduled for a week hold and the AD inspections are conducted during the first few days of the hold. Planning for the possibility that an AMOC approval will be necessary is obviously encouraged.

The team agreed that the operators are free to choose any system or approach they wish and that the team should focus on methods which are independent of the operators' maintenance practices. A point of interest, however, is that not all operators have written standard procedures for handling AMOC requests. This is an important issue and written material as part of their companies procedures may be helpful to institutionalize the selected processes, and to ensure adequate attention for timely initiation of the AMOC requests.

2) Information contained in a request

Information contained in a request for AMOC plays an important role in timely disposition of the request by an ACO. There have been cases in which incomplete information in a request has resulted in delays. An AMOC request should contain the following information in order to assist the ACO's in the evaluation of the request;

2.1) Complete mailing address of the applicant

2.2) Airplane model and series - There are AD's that are applicable to more than one model or series airplane. Identification of the airplane model and series is needed for review of the request.

2.3) Fuselage Number or Fuselage Serial Number - If a request is specific to one airplane as opposed to all of a particular model, documentation of the alternate means of compliance and any future inspections resulting from that approval is important. Therefore, fuselage number or fuselage serial numbers are needed to assist the PMI's and the manufacturers in tracking the status of the fleet.

2.4) Applicable AD number

2.5) Specific paragraph of the AD for which AMOC is requested - A paragraph within an AD may contain a series of instructions or mandate accomplishment instructions contained in a service bulletin. It is important that the request clearly state the specific deviation from the mandated instructions within that paragraph. This helps focus on the extent of the deviation and aids in more timely disposition of the request.

2.6) Reasons for deviation - Since alternate means of compliance is designed to provide flexibility for the applicants, there may be a variety of reasons for a request. It may have been requested for economic reasons, ease of accomplishment or impracticality of the mandated instructions. If reasons for the deviations are clearly identified, it will assist the ACOs and the manufacturers in taking appropriate action to assist other operators of the same product. This is not uncommon and often the manufacturer requests a generic AMOC (an AMOC that applies to all operators) such that all operators can benefit.

2.7) Need Date - This item is by far the most overlooked item. When an AMOC request is submitted to an ACO without a need date, it may incorrectly be assigned a lower priority. Proper planning, as mentioned above, along with a realistic need date will assist in disposition of the requests with no adverse impact on the applicants or the ACOs.

The above information does not guarantee a positive response from the ACOs, but does enhance communication and understanding of real issues which ought to be resolved prior to approval of AMOC. Appendix 4 provides an optional form that may be used to provide this information.

3) Coordination with the Type Certificate Holder (TCH)

In reviewing the current processes for requesting AMOC approvals, the working group noted that a request could end up in an ACO in various ways. The current language within ADs requires the operators to submit AMOC requests to the ACOs through the PMIs. However, TCHs often are in contact with the operators and some TCHs occasionally request AMOC approvals on behalf of the operators. Also there are cases in

which the applicants directly contact the ACOs. Regardless of how the request is initiated, a common step in the approval process is the coordination between the ACOs and the TCHs. The applicant may not be aware that coordination has taken place between the ACO and the TCH.

Early communication between the operators and the TCHs prior to forwarding an AMOC request to ACOs is highly encouraged. The benefits of such a contact are as follows;

- Enhances communication between the operators and the TCHs.
- It will allow the TCHs to review the merits of a request and if found to be advantageous, the necessary steps can be taken to help all operators.
- The status of the AMOC approval is no longer transparent to the operators since the communication between the TCH and the operators are established from the on-set.
- The TCH may act as the agent, on behalf of the operator, to secure approval of the AMOC.
- It helps the TCH to have a better knowledge of the status of the fleet.

If contact with the TCHs has taken place prior to the formal request, the TCHs' DERs can provide a signed copy of the form 8110-3 recommending approval of the substantiating data, which can then be submitted to the ACO in support of the AMOC request.

4) Coordination with the PMIs

The team reviewed and discussed various issues surrounding this topic. The team recognizes that the PMI must be kept well informed of AD AMOC issues. Furthermore, the team agreed that in certain situations, a close working relationship between the engineers at the ACO and the PMI's office is needed to resolve certain issues associated with AMOC approvals.

A quick review of the current process of AMOC requests revealed that the degree of involvement of the PMI's varies significantly. For example, although the AMOC paragraph within an AD calls for the applicant to forward the requests to the ACO through the PMI's office, not all PMIs wish to be a conduit for these requests. Furthermore, the current language of the AMOC paragraph states that the PMIs should provide comments regarding the requests to the ACOs. For most requests, the PMI's comments are simply a concurrence with the request. There are situations where the PMI's input, if well prepared, could assist the ACO engineers in expediting an AMOC approval.

As was mentioned earlier in this report four types of AMOC requests were identified, which if streamlined, could net the largest gain. They were;

- Repairs and modifications (non-SSIP), including repairs that must be approved by the Manager of the ACO
- Inspection methods
- Extensions and Adjustments to compliance times
- SSIP repairs/Follow on inspection programs

For each of the first three cases listed above, the role of a PMI may be somewhat different. In addition, the value added by the PMI's review of AMOC requests and comments to the ACO varies significantly. The team elected to evaluate the need for PMIs involvement for each case and make recommendations to maximize the potential values added.

4.1) Repairs and modifications, including repairs that must be approved by the Manager of the ACO

The turn around time for this type of request is generally short. By forwarding a request through the PMI's office an additional step is added to the process which often yields very little benefit. This step serves as a vehicle to make the PMIs aware of the activities at the operators' facility. The team believes that forwarding the AMOC request to the ACO and the PMI concurrently results in the same benefit with little or no delay. For approval of repairs that are AMOC, the PMIs comment is of very little value. Upon approval of the AMOC request the ACO must make sure that the PMIs are on the distribution list of the approval. This is extremely important for situations in which there are follow on inspections associated with the approval.

4.2) Inspection methods

In contrast to requests for repair approvals, alternative method of inspection requests often have a long lead time for approval. In this case, PMIs' comments could have a major impact on the approval process.

The ACO engineers often are not familiar with the capability of the operators. Often, when they receive such a request, they begin the interaction with the TCH who may or may not be familiar with the particulars of the proposed alternative inspection methods. The team encourages a close working relationship between the operators and the TCHs, however, this is not always possible. The PMI's input to the ACO regarding the capability of the applicant and actual witnessing of the inspection method can help the engineers immensely. At times, the inability of the ACO engineer to gain the appropriate confidence level in accomplishment of a sophisticated inspection method by the applicant can be a source of delay. Consequently, if an applicant and the TCH are not working together, involvement of the PMI is necessary, to the degree that forwarding the AMOC requests through the PMIs office becomes a necessity. Input from the PMIs regarding the applicant capability and comments after witnessing of an inspection method can alleviate some of the concerns and may lead to reduction of approval time.

The AMOC team recommends increased communication between the TCHs and the applicant. Specifically, when approval of alternate inspection methods are sought. This allows the TCH to disseminate approval of AMOC to all operators who wish to take advantage of the new approved method.

4.3) Extensions and Adjustment of compliance time

In reviewing a request for extensions to the compliance time, the ACO engineers assess the potential unsafe situation that may exist if an AD is not complied with within the mandated compliance times. In a situation such as this, it is of value to know the overall operator compliance to the scheduled maintenance inspections. Only PMIs can provide this type of information to the ACOs. Their comments are of value and therefore, the requests for extensions should continue to go through the PMI's office.

Regardless of the type of request, if the PMI submits a recommendation with which the ACO disagrees, the ACO should coordinate with the PMI before either granting or denying the request. If the ACO and PMI continue to disagree following coordination, the ACO's position would prevail.

5) Coordination of AMOC response within the ACOs and with TCH DER's

Currently, upon receipt of a request for an AMOC approval, the request is forwarded to the appropriate technical branch within the ACO. The project engineer within the branch who is responsible for the continued airworthiness of the product has the assignment to review the request, complete all relevant coordination and prepare an approval letter which will be signed by the ACO manager.

The possibility of a delay in the approval of an AMOC request exists at the ACO's as a result of higher priority tasks that may shift resources. The team believes that tracking of the AMOC requests at the ACOs could eliminate inadvertent delays in approval of AMOCs. Tracking of the requests can be done either at the branch level or the ACO level. The team believes that the ACOs are in a better position to determine whether and how this tracking should be accomplished.

As was mentioned earlier, coordination with the TCH DERs is an important step in the review and approval of AMOC requests. This process often occurs without the applicant awareness. The team believes that if prior to the formal requests, an applicant contacts the TCH and seeks assistance in securing approval of the requests, there is a significant reduction in approval time. The benefits are due to the following reasons;

5.1) TCH DERs may have been delegated authority to approve AMOC requests for the AD in question.

5.2) TCH DERs may be able to support the request by issuing a signed copy of the Form 8110-3 which can then be forwarded with the request to the ACO.

5.3) The TCH may already have approval of the AMOC being requested which can then be easily approved for the applicant.

Coordination of the approval letters has also been designated as another source of delay. Currently, signature of the ACO manager is needed for AMOC approvals. The AMOC team believes that signature authority should be delegated to the lowest level consistent with the need to ensure sound decision-making. However, the team recommends a gradual transition to this ultimate goal. For the time being, approval should be delegated to the branch managers or the program managers depending on the structure within the ACOs.

Another aspect of coordination is the involvement of the Aircraft Evaluation Group (AEG). The ACO and AEG should jointly consider whether the approval letter should be coordinated with the AEG office. The AEG evaluates the merits of the request from the operational and maintainability point of views which eventually could prove to be of value to the PMIs. Furthermore, the AEG can ensure that the PMIs receive a copy of the approval letters.

6) Transferability of AMOC approvals

Questions frequently arise at the time an aircraft is transferred as to whether AMOCs approvals that have been issued for that aircraft are transferable to the new operator, or whether the new operator must request that AMOCs be reissued. Usually, the ACO approving the AMOC in the first instance can determine the answer to this question at the time of the original approval. For example, if the AMOC consists of a different configuration of a required modification, the approval should be transferable. On the other hand, if AMOC consists of a different inspection method that has been developed by the applicant using specialized equipment and techniques, the approval should normally not be transferable.

To eliminate the need for unnecessary requests for transfer of AMOC approvals, and to ensure that operators do not assume that approvals are transferable when they should not be, one of the following statement should be included in each AMOC approval letter:

- This AMOC approval is transferable with the affected airplane(s).

- This AMOC approval is not transferable with the affected airplane(s). Any subsequent operator must either comply with the AD or obtain a separate AMOC approval.

The AMOC team recommends that the FAA's AD Manual be revised to include this guidance.

Category 2 - Delegation

The Federal Aviation Administration's (FAA) has historically not authorized Designated Engineering Representatives (DERs) to approve any deviations to Airworthiness Directives (ADs). This policy was based, in part, on section 314 (a) of the FAA Act of 1958 which provides for the Administrator to delegate to any properly qualified person any work, business, or function respecting (1) the examination, inspection, and testing necessary to the issuance of certificates under Title VI of the Act, and (2) the issuance of such certificates in accordance with standards established by the Administrator. Thus, while the Act allows the FAA to delegate to DERs the findings of compliance to known, defined, and published standards established by the FAA, such as 14 CFR Parts 23, 25, 27, 29, 33, and 36, leading to the issuance of certificates, the act does not permit the FAA to delegate discretionary determinations of acceptability, such as those frequently involved in approving deviations from ADs.

A number of initiatives have been undertaken in order to ensure the continued structural integrity of older airplanes. Many of these initiatives have required extensive structural modifications and repairs which have resulted in a substantial increase in the number of AMOC requests and a corresponding increased workload at the cognizant Aircraft Certification Office (ACO). Many of these AMOCs have been for relatively minor structural changes from the mandated repairs or modifications.

In order to address the growing number of AMOCs from these initiatives without increasing FAA resources, a process was developed to allow delegation to DER's of certain approvals for minor deviations from structural AD requirements. This process was based on the FAA Act requirement of finding compliance to a known standard and does not involve discretionary determinations of acceptability. It was determined that the type certification basis of the product identified in the applicability statement of the AD, which includes the FAR amendment level, special conditions, exemptions and equivalent safety findings, would be an acceptable defined standard for minor deviations to the structural AD requirements with which the DER could make findings of compliance.

On this basis, the FAA has authorized certain TCH DERs to approve minor changes to repairs and modifications mandated by any AD on their respective airplanes without further need to secure an AMOC approval. The types of minor changes that these DERs are authorized to approve are edge distance deviations, oversized fasteners, fastener substitution, trimming and machining necessary for fit-up or alignment, lubrication, or finish requirements. The FAA has also authorized certain TCH DERs to approve deviations to the modifications required by the aging fleet mandatory modification ADs on their respective airplanes. These deviations are to permit the proper installation of service bulletin modifications because of construction, the differences between airplanes, local damage, adjacent repairs, or to change blend out or rework limits. In all cases, approvals must be based on a finding that with the change the repair or modification continues to meet the type certification basis of the airplane. This authority has been limited to the

TCH DERs, because they have access to all the type design data and they are under the direct supervision of the cognizant ACO.

The AMOC team was tasked to develop industry and FAA methods for improving the timeliness of AMOC approvals for ADs, while maintaining the same level of safety. The AMOC working group evaluated the possibility of delegating more findings to DERs in areas covered by ADs in order to accomplish the following:

(1) Improve the timeliness of the AMOC issuance.
(2) Maintain at least the same level of safety achieved under the existing process.
(3) Reduce the need for AMOC while maintaining legal enforceability of ADs.
(4) Standardize the process for issuing AMOCs throughout the FAA.
(5) Accomplish the foregoing in a cost effective manner for industry and without increasing the need for FAA resources.

In considering whether the FAA could expand the DER authority in areas covered by AD's, the following subjects were addressed:

In considering whether the FAA could delegate AMOC findings, the team first identified the value added by the ACO review and approval of AMOC requests. The purpose was to ensure that any proposed delegation system would not eliminate the value that is added by the ACO review and approval of AMOC requests and therefore maintain at least the same level of safety. The team identified the following items as value added by ACO review and approval of AMOC requests:

1. Ensures that the safety concern is adequately addressed and that all applicable rules are considered.
2. Provides an additional independent check of the substantiating data and any assumptions used.
3. Provides a means for supervising and coaching DER's, since most AMOC requests are submitted with DER recommend approval.
4. Ensures that safety is not compromised due to economic considerations.
5. Ensures timely completion of required damage tolerance assessments.
6. Facilitates communication between the ACO and the Principal Maintenance Inspectors.

The barriers to delegation were considered so that the team could identify the allowable boundaries of any proposed AMOC delegation. The team identified the following barriers to delegation for deviations from ADs:

1. The FAA Act only permits the FAA to delegate to DERs the findings of compliance to defined standards. The FAA Act does not permit the FAA to delegate discretionary judgments or determinations of acceptability.
2. It is difficult for an ACO to perform DER surveillance/oversight with DERs who are not under their direct supervision.

3. The ACO must ensure that DER approved deviations are within the scope of the delegated authority and consistent with the intent of the AD.
4. It would be difficult for the ACO to retract DER approvals found to be inappropriate.

Evaluation of the value added by the ACO and the barriers to delegation led the team to conclude that any AMOC delegation should be limited to TCH DERs. By limiting this authority to TCH DER's the value added by ACO would not be eliminated and the identified barriers to delegation could be overcome. The team identified the following reasons to limit AD delegation authority to TCH DERs:

1. They have access to all type design data including all the load cases, safety margins, design practices, and analytical methods that were originally used to show compliance with the airplane type certification basis.
2. They are under the direct supervision of the ACO which originated the AD, thus all approvals can be monitored and corrective actions initiated if necessary.
3. They are familiar with the history and basis for the actions required by an AD mandated service bulletin and the original airworthiness concern.
4. It is necessary that the DER, and the ACO via monitoring, is aware of the deviations to ADs since the deviations may be the result of unforeseen new problems. This awareness also enables management of the Continued Airworthiness of the airplane.
5. The ACO originating the AD needs to be aware of previously issued AMOCs in order to determine the applicability to any superseding AD. The type certificate product manufacturer DERs would have this data.

The team considered the following AMOC delegations to be inappropriate:

1. Delegating to non type certificate product manufacturer DERs.
2. Allowing any ACO other than the originating to approve data.
3. Multiple airplane approvals for the same alternative method.
4. Revisions to Service Documents that are referenced in ADs.

Areas that the team concluded would require a discretionary finding and thus could not be delegated:

1. Extensions or adjustments to the compliance times specified in ADs.
2. Discretionary judgments of acceptability.
3. Inspection methods.
4. Unrepaired Damage, such as corrosion and cracks.
5. AMOCs for which analysis or paperwork has yet to be formally submitted.

Finally, the team considered the Supplemental Structural Inspection Program (SSIP) ADs, since these ADs have resulted in a significant number of AMOC requests. In reviewing

the SSIP ADs it was apparent that all the SSIP ADs required repair prior to further flight in the case of a finding. However, there were significantly different AD requirements imposed depending on the method selected by the manufacturer in implementing the guidance provided in AC 91-56. Despite these difference, the AMOC team considered that the approvals for repairs of damage found per domestic airplane SSIP ADs could be delegated to the TCH DERs provided the standard is defined and adequate FAA oversight is assured. Please note that technically these requests are for approval of a means of compliance and not an alternative means of compliance.

Based on the data review of AMOC approvals from January 1993 to June 1994, and on information provided by the operators and manufacturers, the team concluded that deviations from the structural repair/modification ADs create the most problems for the operators and represent the largest workload area that does not involve discretionary determinations of acceptability. Therefore, the team has concentrated on this area to allow delegation. Based on the above discussion, the team considered extending the TCH structural DER's approval authority with respect to ADs in the area of structural repairs and modifications. The team also concluded that extending this authority would significantly reduce the number of AMOC requests submitted to the ACOs for approval. Should this program be successful, the team recommends that the FAA consider extending TCH DERs' approval authority into other areas such as systems and propulsion.

The FAA should implement a new policy to authorize certain TCH structural DERs to approve on individual airplanes general deviations or alternative configurations for AD required repairs and modifications where the FAA determines that the intent of the AD was to restore the airplane into compliance with the airplane type certification basis or other defined airworthiness standard.

Temporary (Time-Limited) Repairs

In establishing the parameters and the barriers to delegation of AMOC approvals, a question concerning the feasibility of delegating the approval of temporary repairs in areas affected by an AD was raised. The question resulted in a number of long discussions to reach consensus among the team members. For the record, a temporary repair is one that will have to be removed within a certain time frame.

Temporary repairs are allowed by the manufacturers and are included as a part of the Structural Repair Manual (SRM) which is an FAA approved document. Also, temporary repairs for damages which exceed the limits specified in the SRM are reviewed and approved by the manufacturers' DERs. In the latter case, the evidence of approval is a signed copy of the form 8110-3. There may be required inspection intervals associated with such approvals.

As was described earlier in this section, the AMOC team agreed that with an adequate oversight system, when the standards required by an AD are well defined, it is possible to delegate approval of any repair (interim or permanent) that may have arisen in conjunction

with showing compliance with that AD. For example, if the intent of the AD is to bring the level of safety to that of the certification basis of a model airplane, then those standards are well defined and delegation to a DER is feasible. There have been instances in which SBs have made provisions for temporary repairs.

The question of applicable standards for temporary repairs generated a substantial amount of discussion and exchange of ideas. There appeared to be a wide range of understandings regarding the standards for temporary repairs. Often, temporary repairs are approved contingent upon accomplishment of repetitive inspections. These inspections may or may not be based on a damage tolerance assessment. This issue may have caused some of the team members to believe that temporary repairs do not meet the certification basis of the aircraft.

For pre-Amendment 45 (no Damage Tolerance Assessment) airplanes the inspections may be based on company practices and/ or DER's judgment. For post-Amendment 45, a temporary repair meets the ultimate strength, and with properly defined inspection intervals could be in compliance with the certification basis as well. However, the accomplishment of damage tolerance assessment is time consuming and often is not completed within the time frame that a repair is needed by an operator to return the aircraft to service.

The AMOC team is of the opinion that if standards required by an AD are well defined and temporary repairs are fully substantiated, then the TCHs' structural DER's can be delegated to approve them. However, the majority of these repairs are designed for a short life and by nature may not be of high quality in either material or, potentially, in design practices. It is this aspect of the temporary repairs that causes the members to define specific guidelines for approval of AD related temporary repairs by the DERs.

Guidelines for Temporary Repairs:

The following guidelines are recommended by the team for the delegation of AD related temporary repairs to TCHs' DERs.

1. Repair must meet the certification basis of the aircraft. It is, however, understood that it may lack certain normally recommended design practices.

2. The durability of the most critical detail of the repair will be at least twice the structural maintenance period and not less than 18 months (based on projected aircraft utilization) .

3. Repair would be replaced by a permanent repair (or terminating action in the case of an AMOC) by the next structural maintenance check not to exceed 24 months. Further, the temporary repair must be designed such that its inspection threshold is greater than its replacement period. In other words there should not be a need for inspection of the repair while it remains installed.

4. TCH whose DER authorizes such repair would be required to:

- Provide a copy of the 8110-3 Form indicating approval of the repair to the airline specifying the terms of the life limited DER approved repair for the particular AD. The 8110-3 Form would indicate that the approval is time limited and that the repair will have to be removed on or before specific date (or flight cycle limit, time limit etc.).

- Provide a copy of the 8110-3 Form indicating approval of the repair to the cognizant ACO within 72 hours of such an approval or other time agreed upon between the TCH and the cognizant ACO.

- The 8110-3 Form shall include the following information:

  - AD number and paragraph.
  - Airplane model, serial number and operator.
  - A description of the temporary repair including part names and numbers, part serial number if applicable, description of damage, cracks, and repair.

- Keep all records (telex's, stress and life analyses, letters etc.) for a period of time consistent with normal continuing airworthiness record keeping requirements, not less than one year after the removal of said repair from the aircraft.

- Have available the necessary paper work to support any audits that the cognizant ACO deems necessary to oversee the system.

The intent of the above guidelines is to revert back to the certification basis of the aircraft which is well defined and the DERs can easily find compliance to the applicable rules. There are situations where a temporary repair may not meet these guidelines, in which case ACO involvement is necessary.

Category 3 - Service Bulletin/AD Process

A significant source of avoidable AMOCs is associated with errors in documentation referenced in ADs. The source of these errors can be either technical or clerical. Their existence however drives significant uses of resources within the FAA and industry. If the error is substantive, the service bulletin must be revised and a new AD issued to mandate the corrective change. AMOCs are required until a revised AD is available. If the error is non-substantive, the manufacturer will none-the-less be interested in revising the service bulletin to avoid confusion even though the FAA may not reissue the AD. AMOCs may be required in this case for an operator to take advantage of the changes. In all cases the errors contained in the initial issue of the service bulletin causes significant unnecessary use of resources.

The ATA introduced the Airworthiness Concern Process (a.k.a. "Lead Airline") in October 1992. (ATA Report AC92). The objectives of this process is to reduce the number of service bulletin errors by a pre-issue critique of the proposed service bulletin. This pre-issue critique includes a review of both the text and the accomplishment instructions to insure accuracy. In some cases an airline actually accomplishes the service bulletin. The information gained in the process quite often leads to revisions in the service bulletin prior to issuance and inclusion in the data referenced by the AD.

The lead airline process is designed to examine potential safety problems in which a companion service bulletin has not yet been written. Occasionally, however, an older service bulletin is mandated by an AD based on evidence that the service bulletin addresses a risk to airworthiness. These situations generally create conditions that were never envisioned at the time the service bulletin was published. The lead airline process is used in this area to ensure that the published data is as accurate as it can be to reduce the possibility of future AMOCs.

For example, in developing the Effectivity section of a service bulletin, the TCH's primary focus is on reviewing the original design data and its own changes that may have been incorporated either in production or in service. However, there may also be design changes (e.g. STCs) that also should be considered in determining Effectivity of a service bulletin. For example, in developing a service bulletin to address a problem associated only with airplanes that are configured for passenger carriage (e.g., defective emergency evacuation equipment), the TCH may include all airplanes that were originally certificated for carrying passengers. If some of those airplanes have been converted to cargo-only configurations in accordance with STCs, an AD referencing the SB's Effectivity section would apply to those airplanes, even though they are not equipped with the affected equipment. Therefore, those operators would have to obtain an AMOC for those airplanes. This can be prevented if, in the first instance, the TCH and the lead airline and other operators are aware, in developing and reviewing the Effectivity section of the SB, that, where possible, it should be limited to airplanes "equipped with" the affected equipment.

While the ATA lead airline process has been successful in reducing errors and requests for AMOC's, there is still room for improvement. The AMOC team has three recommendations directed to the ATA:

RECOMMENDATION 1: Provide a revised checklist for the lead airline process as a way of reducing the number of AMOC requests.

The checklist that has been created by the ATA to assist the lead airline in critiquing an existing or future planned service bulletin is inadequate. In reviewing the ATA checklist, the AMOC team believes that a more detailed checklist is required to comprehensively examine all aspects of the issues that may occur after AD publication.

RECOMMENDATION 2: Define the limits of the lead airline process so that its role in reducing the number of AMOCs is clearly understood.

There are times when a difference of opinion exists between the manufacturers/operators and the FAA on whether a service document needs to be mandated . The operators/manufacturers are provided the opportunity to submit their comments to the proposed rule. Should the FAA adopt an AD, the lead airline process should still be supportive in ensuring that the referenced service document does not lead to increased AMOC's.

RECOMMENDATION 3: Revise ATA's Specification 100 so that the scope of the approved AMOC is clearly understood.

The present wording of ATA Specification 100, Section 2-7-4 reads as follows:

Approval - If a subsequent revision to the service bulletin is issued as an equivalent means of FAA Airworthiness Directive (AD) compliance and the phrase" --- or later FAA approved revision" is not included in the provision of the AD, the following shall be included in the SB revision:

"This revision has been approved by the FAA (or other applicable airworthiness government authority) as an equivalent means of compliance with AD XX-XX-XX."

It may also be necessary to revise this section of ATA Specification 100:

Sometimes certain provisions of the accomplishment instructions are not part of the Alternate Means of Compliance approval. For example, the manufacturer may include two separate accomplishment instructions even though only one is approved under the AMOC. Under these circumstances, the blanket statement now required by ATA Spec 100 would not be accurate and may lead to a situation of non-compliance. In addition, a revised service bulletin may provide an AMOC for only a portion of an AD. These problems would be addressed by revising Spec 100 to state: "The FAA has approved the accomplishment of Paragraph(s) _____ of this service bulletin as an alternative method of compliance with Paragraph(s) _____ of AD _____."

Category 4 - Supplemental Structural Inspection Program AMOC Issues

Supplemental Structural Inspection Program AMOC issues addressed by the Category 4 group included repair requirements imposed by SSIP AD's on different models of airplanes as well as delegation issues associated with repairs to structure defined as Principal Structural Elements (PSE's) by the SSIP AD's. The Category 4 group discussed not only AMOC issues pertaining to the SSIP AD's, but issues relating to repair approval by ACO's. These repair approvals are handled in the same manner as AMOC approvals and constitute much of the AMOC activity.

The category 4 group reviewed the wording in the SSIP ADs for different model airplanes. Following are the two basic wordings of SSIP AD repair paragraphs among the various affected airplane models:

- "repair in a manner approved by the manager ACO"
- "repair in accordance with an FAA approved method (DER approved data, SRM, SB)"

These differences have resulted in significantly larger number of AMOCs for the ADs with the first statement than for those with the second statement.

Some SSIP ADs mention the certification basis of the airplane and approval by the FAA or other airworthiness authorities. The group determined that specific repair approval paragraphs were written by the ACOs in harmony with what they understood the programs to accomplish and the FAA oversight necessary to monitor the program.

The category 4 team concluded that approval of repairs to PSEs could be delegated to TCH DERs as long as a definable standard for determining acceptability is identified and adequate oversight of the cognizant ACO is assured. The oversight system which will be put into place for category 2 (delegation) could be used for Category 4 (SSIP) repair approval delegation.